UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Northwest Region
7600 Sand Point Way N.E., Bldg. 1
Seattle, WA 98115

Refer to:
2003/01467

June 14, 2004

Mr. Lawrence C. Evans
Portland District Corps of Engineers
CENWP-OP-GP (Ms. Karla Ellis)
P.O. Box 2946
Portland, Oregon 97208-2946

Re: Endangered Species Act Section 7 Formal Consultation, and Magnuson-Stevens Fishery Conservation and Management Act Essential Fish Habitat Consultation on Killam Creek Fish Passage Project, Tillamook River Basin, Tillamook County, Oregon (Corps No. 200300323)

Dear Mr. Evans:

Enclosed is a biological opinion (Opinion) prepared by NOAA's National Marine Fisheries Service (NOAA Fisheries) pursuant to section 7 of the Endangered Species Act (ESA) on the issuance of a permit under section 404 of the Clean Water Act to the Tillamook Estuary Partnership for a fish passage restoration project in Killam Creek, Tillamook County, Oregon. NOAA Fisheries concludes in this Opinion that the proposed action is not likely to jeopardize Oregon Coast coho salmon (*Oncorhynchus kisutch*). As required by section 7 of the ESA, NOAA Fisheries included reasonable and prudent measures with non-discretionary terms and conditions that NOAA Fisheries believes are necessary to avoid or minimize the effects of incidental take associated with these actions.

This document also serves as consultation on essential fish habitat (EFH) pursuant to section 305(b) of the Magnuson-Stevens Fishery Conservation and Management Act (MSA) and implementing regulations (50 CFR Part 600). NOAA Fisheries concludes that the proposed action may adversely affect designated EFH for Pacific salmon species. As required by section 305(b)(4)(A) of the MSA, included are conservation recommendations that NOAA Fisheries believes will avoid, minimize, mitigate, or otherwise offset adverse effects on EFH resulting from the proposed action. As described in the enclosed consultation, 305(b)(4)(B) of the MSA requires that a Federal action agency must provide a detailed response in writing within 30 days after receiving an EFH conservation recommendation.

Please direct any questions regarding this letter to Pat Oman, fisheries biologist, of my staff in the Oregon Coast/Lower Columbia River Branch of the Oregon State Habitat Office at 503.231.2313.

Sincerely,

Russell M Strach for

D. Robert Lohn
Regional Administrator

cc: Rachel Warner, Tillamook Estuary Partnership
Chris Knutson, Oregon Department of Fish and Wildlfie
Tom Shafer, Oregon Watershed Enhancement Board

Endangered Species Act - Section 7 Consultation
Biological Opinion

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Magnuson-Stevens Fishery Conservation and Management Act
Essential Fish Habitat Consultation

Killam Creek Fish Passage Project
Tillamook River Basin
Tillamook County, Oregon
(Corps No. 200300323)

Agency: U.S. Army Corps of Engineers

Consultation Conducted By: NOAA Fisheries
Northwest Region

Date Issued: June 14, 2004

Issued by: Russell M Strach for
D. Robert Lohn
Regional Administrator

Refer to: **2003/01467**

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1. INTRODUCTION

The Endangered Species Act (ESA) of 1973 (16 USC 1531-1544), as amended, establishes a national program for conserving threatened and endangered species of fish, wildlife, plants, and the habitat on which they depend. Section 7(a)(2) of the ESA requires Federal agencies to consult with U.S. Fish and Wildlife Service and NOAA Fisheries, as appropriate, to ensure that their actions are not likely to jeopardize the continued existence of endangered or threatened species or adversely modify or destroy their designated critical habitats. This biological opinion (Opinion) is the product of an interagency consultation pursuant to section 7(a)(2) of the ESA and implementing regulations found at 50 CFR 402.

The analysis also fulfills the essential fish habitat (EFH) requirements under the Magnuson-Stevens Fishery Conservation and Management Act (MSA). The MSA, as amended by the Sustainable Fisheries Act of 1996 (Public Law 104-267), established procedures designed to identify, conserve, and enhance EFH for those species regulated under a Federal fisheries management plan. Federal agencies must consult with NOAA Fisheries on all actions, or proposed actions, authorized, funded, or undertaken by the agency that may adversely affect EFH (§305(b)(2)).

The proposed action is the issuance of permits to the Tillamook Estuary Partnership (TEP) by the U.S. Army Corps of Engineers (Corps) under section 404 of the Clean Water Act. The project proposed by the TEP will enable fish passage on Killam Creek, a tributary to the Tillamook River. The administrative record for this consultation is on file at the Oregon State Habitat Office of NOAA Fisheries.

1.1 Background and Consultation History

On December 2, 2003, NOAA's National Marine Fisheries Service (NOAA Fisheries) received a letter requesting formal consultation pursuant to section 7(a)(2) of the ESA and EFH consultation pursuant to section 305(b)(2) of the MSA for issuance of Clean Water Act section 404 permits for a project to restore fish passage at the municipal water supply facility on Killam Creek. NOAA Fisheries reviewed the material included with the consultation request, and responded to the Corps with a letter requesting additional information on December 28, 2003.

On January 28, 2004, NOAA received additional information, including a biological assessment (BA), that provided details about the project

This Opinion considers the potential effects of the proposed action on Oregon Coast (OC) coho salmon, which occur in the proposed action area. OC coho salmon were listed as threatened under the ESA on August 10, 1998 (63 FR 42587) and protective regulations were issued on July 10, 2000 (65 FR 42422). This consultation was delayed due to uncertainty over the listing status of OC coho salmon. On May 18, 2004, the U.S. Department of Justice clarified that OC coho salmon remain listed as threatened under the ESA until the Ninth Circuit Court of Appeals issues a mandate to make effective their February 24, 2004, order dissolving their December 14, 2001

stay of the September 12, 2001 Federal district court ruling vacating the listing determination. The objective of this Opinion is to determine whether the proposed action is likely to jeopardize the continued existence of OC coho salmon. This consultation is conducted pursuant to section 7(a)(2) of the ESA and its implementing regulations, 50 CFR 402.

1.2 Proposed Action

The proposed action is the issuance of permits to the TEP by the Corps under section 404 of the Clean Water Act to construct fish passage at a municipal water supply impoundment that blocks fish passage to upstream habitat.

The existing water diversion and impoundment structures have been in place since the early 1920s. The water diversion structure is a concrete dam with adjustable boards. At present, about 1.75 cubic feet per second (cfs) are diverted via an unscreened concrete channel and stored in a settling pond in an adjacent field. This water is screened to removed debris and piped to a nearby water treatment facility. These structures have served to provide water for the City of Tillamook (City) for about 75 years, during which time fish passage has been blocked because of a 3-foot vertical drop from the dam spillway sill and because of the shallow depth of the pool in the summer. There is no significant deterioration of the structures, and the City and TEP propose to add elements to the existing impoundment so that juvenile and adult fish passage will be possible.

A pool and weir-type fish ladder will be constructed on the north side of the stream to provide passage around the existing concrete sill. The ladder width will be 4 feet and the typical pool length will be 5 feet 6 inches. The ladder will have five drops of approximately 6 inches. A paddle wheel drive assembly will operate the screen cleaning system.

NOAA Fisheries fish passage engineering staff have reviewed the proposed fish facility designs. The proposed passage facilities include a "passive" screen (as defined by NOAA Fisheries 2004) and a pool and weir fish ladder. NOAA Fisheries review of the facililties and propsed operation meets the NOAA Fisheries Anadromous Salmonid Passage Facility Guidelines and Criteria (http://www.nwr.noaa.gov/1hydrop/hydroweb/docs/Passagecriteria.extrevdraft.pdf).

Summer low flows are around 2 to 3 cfs. The engineering plans call for a fish screen design that will allow the City to withdraw its full water right of 6 cfs. At present, TEP habitat restoration plans call for maintaining a minimum water depth of 12 inches in the forebay at all times, to ensure adequate depth for the ladder and screen. However, future increased levels of water use may lead to higher withdrawals should the City continue to grow (personal communication from Rachel Warner, April 16, 2004).

The construction work will be done with heavy equipment operating in and beside the riparian zone, during the summer in-water work season (between July 1 and September 15, 2004).

1.3 Conservation Measures

Conservation measures in the following categories are proposed by the TEP: (1) Timing of in-water work, (2) limiting the use of treated wood, (3) adherence to NOAA Fisheries' fish passage and screening guidelines, and (4) pollution and erosion control. NOAA Fisheries regards the conservation measures included in the BA that accompanied the consultation request as intended to minimize adverse effects to anadromous salmon habitat, and considers them to be part of the proposed action.

In addition, the TEP proposed measures that would prevent the death or injury of anadromous salmonids. These would limit the "take" of OC coho salmon. These are also considered to be part of the proposed action.

1.4 Description of the Action Area

The action area is defined as all areas to be affected directly or indirectly by the Federal action and not merely the immediate area (project area) involved in the proposed action (50 CFR 402.02). For this consultation, NOAA Fisheries defines the action area as all riparian and riverine habitats accessible to OC coho salmon from 100 feet upstream of the project site, to 300 feet downstream of the impoundment, including the 100-year floodplain. This area has been designated as EFH for Chinook and coho salmon.

2. ENDANGERED SPECIES ACT

2.1 Biological Opinion

This Opinion considers the potential effects of the proposed action on OC coho salmon, which occur in the action area, and on essential fish habitat for Chinook and coho salmon.

2.1.1 Biological Information

Estimated escapement of coho salmon in coastal Oregon was about 1.4 million fish in the early 1900s, with harvest of nearly 400,000 fish (Weitkamp *et al.* 1995). Abundance of wild OC coho salmon declined from about 1965 to 1975 (Nickelson *et al.* 1992). Lichatowich (1989) concluded that production potential (based on stock recruit models) for OC coho salmon in coastal Oregon rivers was only about 800,000 fish, and associated this decline with a reduction in habitat capacity of nearly 50%. Recent estimates of wild spawner abundance in this evolutionarily significant unit (ESU) has ranged from 16,500 adults in 1990, to nearly 60,000 adults in 1996, and 238,700 adult coho in 2002 (ODFW 2003).

Estimated spawning populations for naturally-produced coho salmon in the Killam Creek watershed have fluctuated, from a low of 0 from 1996 to 2000, to a high of 24 in 2002. Random

surveys done of segments of Killam Creek above the diversion structure, carried out in 1997 and 1997, found no anadromous spawners. Results are summarized in Table 1.

Table 1. Oregon Coast coho and Chinook salmon spawner abundance based on ODFW peak counts in segments of Killam Creek below project site - random surveys done in 1993, 1996-1997, 1999, and 2000-2002 (Jacobs *et al.* 2002).

Year:	1993	1996	1999	2000	2001	2002
Estimated wild Chinook spawners:	2	2	8	0	0	21
Estimated wild coho spawners:	2	2	0	0	7	24

2.1.2 Evaluating Proposed Actions

The standards for determining jeopardy are set forth in section 7(a)(2) of the ESA as defined by 50 CFR 402.02 (the consultation regulations). In conducting analyses of habitat-altering actions under section 7 of the ESA, NOAA Fisheries uses the following steps: (1) Consider the biological requirements of the listed species; (2) evaluate the relevance of the environmental baseline in the action area to the species' current status; (3) determine the effects of the proposed or continuing action on the species; and (4) determine whether the species can be expected to survive with an adequate potential for recovery under the effects of the proposed or continuing action, the effects of the environmental baseline, and any cumulative effects, and considering measures for survival and recovery specific to other life stages. In completing this step of the analysis, NOAA Fisheries determines whether the action under consultation, together with cumulative effects when added to the environmental baseline, is likely to jeopardize the ESA-listed species

The fourth step above requires a two-part analysis. The first part focuses on the action area and defines the proposed action's effects in terms of the species' biological requirements in that area (*i.e.*, effects on essential habitat features). The second part focuses on the species itself. It describes the action's effects on individual fish, or populations, or both, and places these effects in the context of the ESU as a whole. Ultimately, the analysis seeks to answer the question of whether the proposed action is likely to jeopardize a listed species' continued existence. If so, step 5 is the identification by NOAA Fisheries of possible reasonable and prudent alternatives for the action that avoid jeopardy.

2.1.3 Biological Requirements

The first step in the methods NOAA Fisheries uses for applying the ESA section 7(a)(2) to listed salmon is to define the species' biological requirements that are most relevant to each consultation. NOAA Fisheries also considers the current status of the listed species, taking into account population size, trends, distribution, and genetic diversity. To assess to the current status
of the listed species, NOAA Fisheries starts with the determinations made in its decision to list the species for ESA protection and also considers new data available that is relevant to the determination.

The biological requirements are population characteristics necessary for OC coho salmon to survive and recover to naturally-reproducing population levels, at which time protection under the ESA would become unnecessary. Adequate population levels must safeguard the genetic diversity of the listed stock, enhance its capacity to adapt to various environmental conditions, and allow it to become self-sustaining in the natural environment.

For actions that affect freshwater habitat, NOAA Fisheries usually describes the habitat portion of a species' biological requirements in terms of a concept called properly functioning condition (PFC). PFC is defined as the sustained presence of natural, habitat-forming processes in a watershed that are necessary for the long-term survival of the species through the full range of environmental variation (NOAA Fisheries 1999). PFC, then, constitutes the habitat component of a species' biological requirements. OC coho salmon survival in the wild depends upon the proper functioning of ecosystem processes, including habitat formation and maintenance. Restoring functional habitats depends largely on allowing natural processes to increase their ecological function, while at the same time removing adverse effects of current practices. For this consultation, the biological requirements are improved habitat characteristics that would function to support successful adult migration, holding, and spawning; and juvenile rearing, upstream and downstream migration, and smoltification.

Essential habitat features for juvenile rearing (growth and development) areas include adequate water quality, water quantity, water velocity, cover and shelter, dietary and spatial resources, riparian vegetation, and safe passage to upstream and downstream habitats. Essential habitat features for juvenile migration corridors include adequate water quality, water quantity, water velocity, cover and shelter, dietary resources, riparian vegetation and space. Essential habitat features for adult migration corridors include adequate water quality, water quantity, water velocity, cover and shelter, riparian vegetation and space.

2.1.4 Environmental Baseline

In step two of NOAA Fisheries' analysis, the relevance of the environmental baseline in the action area is evaluated. Regulations implementing section 7 of the ESA (50 CFR 402.02) define the environmental baseline as the past and present effects of all Federal, state, or private actions and other human activities in the action area. The environmental baseline also includes

the anticipated effects of all proposed Federal projects in the action area that have undergone section 7 consultation, and the effects of state and private actions that are contemporaneous with the consultation in progress.

Land uses in the vicinity of the action area are primarily agricultural, with any residential use associated with cattle-raising and other farming activities. Riparian areas and stream channels in the action area have been damaged by activities related to these land uses throughout the watershed (FEMAT 1993, Botkin *et al.* 1995, OCSRI 1997). Habitat changes that have contributed to the decline of OC coho in the action area include: (1) Reduced biological, chemical, and physical connectivity between streams, riparian areas, floodplains, and uplands; (2) elevated fine sediment yields; (3) reduced instream large woody debris; (4) loss or degradation of riparian vegetation; (5) altered stream channel morphology; (6) altered base and peak stream flows; and (7) fish passage impediments.

NOAA Fisheries concludes that not all of the biological requirements of the listed species within the action area are being met under current conditions. Based on the best available information on the status of OC coho salmon, including population status, trends, and genetics, and the environmental baseline conditions within the action area, significant improvement in habitat conditions is needed to meet the biological requirements of OC coho salmon for survival and recovery.

2.1.5 Analysis of Effects

In step three of NOAA Fisheries' jeopardy analysis, the effects of proposed actions on listed species are evaluated, and the biologist provides an opinion about whether the species can be expected to survive with an adequate potential for recovery if those actions go forward.

2.1.5.1 Effects of the Proposed Action

The habitat indicators that will be affected by the proposed action are water quality (temporary effects) and physical barriers (permanent effects).

Water Quality – Turbidity

In the short term, sediment from construction activities will cause turbidity in the stretch of Killam Creek immediately downstream of the project area. In the long term, restoration of fish passage at the dam will allow for access to habitat upstream.

Increased suspended sediments from construction can adversely affect salmonid fish habitat. The size of the sediment particles and flow velocities typically affect the duration of sediment suspension in the water column. Larger particles (> 2millimeters), such as sand and gravel, settle rapidly, but silt and very fine sediment may be suspended for several hours. Suspended sediments can adversely affect salmonid migratory and social behavior and foraging opportunities (Bisson and Bilby 1982; Sigler *et al.* 1984; Berg and Northcote 1985).

Turbidity is defined as a measurement of relative clarity due to an increase in dissolved or suspended, undissolved particles (measured as total suspended solids, or TSS). At moderate levels, turbidity can reduce primary and secondary productivity and, at high levels, has the potential to interfere with feeding and to injure and kill adult and juvenile fish (Spence *et al.* 1996, Bjornn and Reiser 1991). Servizi (1988) observed an increase in sensitive biochemical stress indicators and an increase in gill flaring when salmonids were exposed to highly turbid water (gill flaring allows the fish to create sudden changes in buccal cavity pressure, which acts similar to a cough). Salmonid fishes may move laterally and downstream to avoid turbid plumes (Sigler *et al.* 1984, Lloyd 1987, Servizi and Martens 1991). Juvenile salmonid fishes tend to avoid streams that are chronically turbid, such as glacial streams or those disturbed by human activities, except when the fish must traverse these streams along migration routes (Lloyd *et al.* 1987). A potential positive effect of increased turbidity is providing refuge and cover from predation. Fish that remain in turbid waters experience a reduction in predation from piscivorous fish and birds (Gregory and Levings 1998). In habitats with intense predation pressure, this provides a beneficial trade-off of enhanced survival in exchange for physical effects such as reduced growth.

Exposure duration is a critical determinant of the occurrence and magnitude of physical or behavioral effects (Newcombe and MacDonald 1991). Salmonid fishes have evolved in systems that periodically experience short-term pulses (days to weeks) of high suspended sediment loads, often associated with floods, and are adapted to such exposures. Adult and larger juvenile salmonid fishes appear to be little affected by the high concentrations of suspended sediments that occur during storm and snowmelt runoff episodes (Bjornn and Reiser 1991). However, chronic exposure can cause physiological stress that can increase maintenance energy and reduce feeding and growth (Redding *et al.* 1987, Lloyd 1987, Servizi and Martens 1991).

The proposed construction is likely to temporarily increase turbidity downstream of the work area during and after construction for a total of approximately 7 to 10 hours per in-water construction activity. These temporary increases in turbidity are not likely to physiologically stress and displace adults, since the work will take place during periods when adults are not present (*i.e.*, during the in-water work window). Rearing juvenile salmon may be present, but construction is proposed to occur only during the summer in-water work window, when juvenile abundance is likely low. Due to the measures to isolate the work from the creek flow, NOAA Fisheries does not expect significant levels of mortality in the juvenile salmonid population.

Water Quality – Dissolved Oxygen

Fine sediments produced by construction would likely create a sediment plume that may not disperse rapidly. Decreases in dissolved oxygen have been shown to adversely affect swimming performance in salmonid fishes (Bjornn and Reiser 1991). NOAA Fisheries expects only minor effects on dissolved oxygen concentrations due to the limited construction activity that is proposed, and because in-water work will be isolated from the stream flow.

Construction Equipment

Operation of heavy equipment requires the use of fuel, lubricants, coolants, and other petroleum products, which if spilled into a waterbody could injure or kill aquatic organisms. Petroleum-based contaminants, such as fuel, oil, and some hydraulic fluids, contain harmful polycyclic aromatic hydrocarbons. The proposed action includes a spill containment and control plan. Because the construction will take place over a period of no more than 3 months, and the fish ladder is expected to last at least 20 years, any pollution from the use of machinery is expected to be temporary and short-lived.

Fish Passage Improvement (Physical Barriers)

The screen and ladder, as designed, have been reviewed by NOAA fish passage engineers and found consistent with NOAA Fisheries Anadromous Salmonid Passage Facility Criteria and Guidelines. As part of the project, ODFW and TEP have agreed to monitor the ladder and fish presence upstream. The ladder and screen will be maintained by the City. This project, when completed, will allow anaadromous fish to access the upper reaches of Killam Creek, which includes several stream miles of the creek and tributaries. This spawning and rearing habitat should produce a greater number of OC coho than are currently coming out of this system. This additional production should more than offset any loss to the species from temporary construction effects.

2.1.5.2 Cumulative Effects

Cumulative effects are defined in 50 CFR 402.02 as "those effects of future State or private activities, not involving Federal activities, that are reasonably certain to occur within the action area of the Federal action subject to consultation."

NOAA Fisheries is not aware of any specific future non-federal activities within the action area that would cause greater effects to listed species than presently occurs. The action area consists of municipal property.

Between 1990 and 2000 the population in Tillamook County increased by 12.5%, according to the Census Bureau (http://quickfacts.census.gov/). Thus, NOAA Fisheries assumes that future private and state actions will continue within the action area, increasing as population density rises. As the human population in the state continues to grow, demand for actions similar to the subject project likely will continue to increase as well. Each subsequent action may have only a small incremental effect, but taken together they may have a significant effect that would further degrade the watershed's environmental baseline and undermine the improvements in habitat conditions necessary for listed species to survive and recover.

2.1.6 Conclusion

After reviewing the best available scientific and commercial information available regarding the current status of the OC coho salmon ESU, the environmental baseline for the action area, the effects of the proposed action, including the beneficial effects of restoring fish passage, as well

as the negative effects to water quality from turbidity, increased dissolved oxygen, potential pollution from construction equipment, and cumulative effects, NOAA Fisheries concludes that the action, as proposed, is not likely to jeopardize the continued existence of OC coho salmon.

Our conclusion is based on the following considerations: (1) All in-water work will occur at a time of year when abundance of adult and juvenile OC coho salmon is low; (2) all in-water work would occur for no more than approximately 10 hours per day, for no longer than 90 days; (3) potential increases in turbidity and reductions in dissolved oxygen will be short-lived; (4) all in-water work will be isolated from the creek flow and erosion control measures will be in place throughout the construction period; and (5) the effects of this action will improve the condition of currently impaired habitat (blocked fish passage) and restore it to a more properly functioning conditions (by restoration of passage conditions that will allow access to upstream habitat).

2.1.7 Conservation Recommendation

Section 7(a)(1) of the ESA directs Federal agencies to utilize their authorities to further the purposes of the ESA by carrying out conservation programs for the benefit of the threatened and endangered species. Conservation recommendations are *discretionary* measures suggested to minimize or avoid adverse effects of a proposed action on listed species, to minimize or avoid adverse modification of critical habitat, or to develop additional information.

NOAA Fisheries believes the following conservation recommendations are consistent with these obligations, and therefore should be implemented by the Corps.

1. Removing water or otherwise altering streamflow when it significantly impairs spawning, migration, feeding or other essential behavioral patterns is a habitat-modifying activity that may harm listed species and therefore may be considered a 'take' under the ESA.[1] Because water will continue to be withdrawn from the existing facility on Killam Creek whether or not the fish ladder and screen are constructed, the existing withdrawals are considered part of the current environmental baseline for the site. However, NOAA Fisheries does not consider any take associated with such withdrawals to be incidental to the proposed action, and therefore, compliance with these terms and conditions will not remove the prohibition against take due to the existing withdrawals. Similarly, any future increase in the rate or duty of withdrawal from Killam Creek is likely to have additional adverse effects on Oregon Coast coho salmon. Therefore, the Corps should encourage the City of Tillamook to pursue appropriate management actions to minimize the take of OC coho salmon and appropriate methods pursuant to the ESA to authorize or permit any continuing take that may occur as a result of those withdrawals.

[1] See, 64 FR 60727 (November 8, 1999) (defining 'harm' as an element of 'take' in the ESA, citing pollutant discharge as an example) and 65 FR 42522 (July 10, 2000) (applying take prohibition to threatened species, and describing stormwater discharge as a source of take associated with redevelopment).

In order for NOAA Fisheries to be kept informed of actions minimizing or avoiding adverse effects, or those that benefit listed species or their habitat, NOAA Fisheries requests notification of the implementation of any conservation recommendations.

2.1.8 Reinitiation of Consultation

As provided in 50 CFR 402.16, reinitiation of formal consultation is required where discretionary Federal agency involvement or control over the action has been retained (or is authorized by law) and if: (1) The amount or extent of taking specified in the incidental take statement is exceeded, or is expected to be exceeded; (2) new information reveals effects of the action may affect listed species in a way not previously considered; (3) the action is modified in a way that causes an effect on listed species that was not previously considered; or (4) a new species is listed or critical habitat is designated that may be affected by the action. In instances where the amount or extent of incidental take is exceeded, any operations causing such take must cease pending conclusion of the reinitiated consultation.

2.2 Incidental Take Statement

The ESA at section 9 [16 USC 1538] prohibits take of endangered species. The prohibition of take is extended to threatened anadromous salmonids by section 4(d) rule [50 CFR 223.203]. Take is defined by the statute as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct." [16 USC 1532(19)] Harm is defined by regulation as "an act which actually kills or injures fish or wildlife. Such an act may include significant habitat modification or degradation which actually kills or injures fish or wildlife by significantly impairing essential behavior patterns, including, breeding, spawning, rearing, migrating, feeding or sheltering." [50 CFR 222.102] Harass is defined as "an intentional or negligent act or omission which creates the likelihood of injury to wildlife by annoying it to such an extent as to significantly disrupt normal behavior patterns which include, but are not limited to, breeding, feeding, or sheltering." [50 CFR 17.3] Incidental take is defined as "takings that result from, but are not the purpose of, carrying out an otherwise lawful activity conducted by the Federal agency or applicant." [50 CFR 402.02] The ESA at section 7(o)(2) removes the prohibition from any incidental taking that is in compliance with the terms and conditions specified in a section 7(b)(4) incidental take statement [16 USC 1536].

2.2.1 Amount or Extent of Take

The proposed action covered by this Opinion is reasonably certain to result in incidental take of listed species due to temporary changes in water quality. Effects of actions such as these are largely unquantifiable in the short term, but are likely to be largely limited to harm in the form of injury and behavior modification. The take that may occur as a result of the proposed project is limited to non-lethal take of juvenile coho that occurs during construction. Effects of future increased water withdrawals, of failure to maintain or ensure proper operation of the screen and ladder, or of retrofitting the screen to accommodate increased flow velocity, are not covered by this take statement.

Therefore, even though NOAA Fisheries expects some low level of incidental take to occur due to the action covered by this Opinion, the best scientific and commercial data available are not sufficient to enable it to estimate a specific amount of incidental take. In instances such as this, NOAA Fisheries designates the expected level of take in terms of the extent of take allowed. Therefore, the extent of take for this opinion is limited to take resulting from activities undertaken as described in this Opinion that occur in the action area, which includes all habitats accessible to OC coho salmon from 100 feet upstream of the fish ladder, to 300 feet downstream of the impoundment, including the 100-year floodplain. Incidental take occurring due to modifications to the proposed action or beyond the area described is not authorized by this consultation.

2.2.2 Reasonable and Prudent Measures

These reasonable and prudent measures are discretionary measures to minimize take, that may or may not already be part of the description of the proposed action. They must be implemented as binding conditions for the exemption in section 7(a)(2) to apply. The Corps has the continuing duty to regulate the activities covered in this incidental take statement. If the Corps fails to require the applicants to adhere to the terms and conditions of the incidental take statement through enforceable terms that are added to the permit or grant document, or fails to retain the oversight to ensure compliance with these terms and conditions, the protective coverage of section 7(o)(2) may lapse.

The following reasonable and prudent measures are necessary and appropriate to minimize take of listed fish resulting from implementation of the proposed action. The Corps shall ensure that:

1. A comprehensive monitoring and reporting program will be completed to affirm this Opinion is meeting its objective of minimizing take from permitted activities.

2. Take from construction effects to water quality and physical habitat alteration will be avoided or minimized by applying permit conditions that require that construction is carried out with minimum harm to aquatic and riparian systems within the action area of the project.

2.2.3 Terms and Conditions

To be exempt from the prohibitions of section 9 of the ESA, the Corps must comply with the following terms and conditions, which implement the reasonable and prudent measures described above. These terms and conditions are non-discretionary and are applicable to more than one category of activity. Therefore, terms and conditions listed for one type of activity are also terms and conditions of any category in which they would also minimize take of listed species or their habitats.

1. To implement reasonable and prudent measure #1 (monitoring), the Corps shall ensure that:

   a. Salvage notice. The following notice is included as a permit condition.

      > NOTICE. If a sick, injured or dead specimen of a threatened or endangered species is found, the finder must notify the Vancouver Field Office of NOAA Fisheries Law Enforcement at 360.418.4246. The finder must take care in handling of sick or injured specimens to ensure effective treatment, and in handling dead specimens to preserve biological material in the best possible condition for later analysis of cause of death. The finder also has the responsibility to carry out instructions provided by Law Enforcement to ensure that evidence intrinsic to the specimen is not disturbed unnecessarily.

   b. Written planning requirements. Before beginning any work below bankfull elevation,[2] the permittee will provide a copy of the written plans for site restoration and pollution and erosion control, to the Oregon State Habitat Office of NOAA Fisheries at the following address. Plan requirements are described below.

      Director, Oregon State Habitat Office
      Habitat Conservation Division
      NOAA Fisheries
      Attn: 2003/01467
      525 NE Oregon Street
      Portland, OR 97232

   c. Implementation monitoring report required. The permittee submits an implementation monitoring report to the Corps and to NOAA Fisheries, at the address below, within 120 days of completing all in-water work. The monitoring report will describe the permittee's success meeting his or her permit conditions.
      i. If the in-water work will not be completed by January 31 following the year during which consultation was completed, the permittee shall submit a report to the Corps and to NOAA Fisheries by January 31 saying why the in-water work was not complete.
      ii. If the monitoring report or explanation of why work was not completed is not received by the Corps and NOAA Fisheries by January 31, NOAA Fisheries may consider that a modification of the action that causes an

[2] 'Bankfull elevation' means the bank height inundated by a 1.5 to 2-year average recurrence interval and may be estimated by morphological features such average bank height, scour lines and vegetation limits.

effect on listed species not previously considered and causes the incidental take statement of the Opinion to expire.

iii. Submit a copy of the monitoring report or explanation of why work was not completed to the Oregon State Habitat Office of NOAA Fisheries, at the address above.

d. Implementation monitoring report contents. Each monitoring report will include the following information.

i. Project identification

(1) Permittee name, permit number, and project name.

(2) Project location by 5th field HUC and by latitude and longitude as determined from the appropriate USGS 7-minute quadrangle map.

(3) Corps contact person.

(4) Starting and ending dates for work completed.

ii. Habitat conditions. Photos of habitat conditions at the project and any compensation site or sites, before, during, and after project completion.[3]

(1) Include general views and close-ups showing details of the project and project area, including pre- and post-construction.

(2) Label each photo with date, time, project name, photographer's name, and a comment about the subject.

iii. Project data.

(1) Work cessation. Dates work ceased due to high flows, if any.

(2) Pollution control. A summary of pollution and erosion control inspections, including any erosion control failure, contaminant release, and correction effort.

(3) Site preparation.

(a) Total cleared area – riparian and upland.

(b) Total new impervious area.

(4) Isolation of in-water work area, capture and release.

(a) Supervisory fish biologist – name and address.

(b) Methods of work area isolation and take minimization.

(c) Stream conditions before, during and within one week after completion of work area isolation.

(d) Means of fish capture.

(e) Number of fish captured by species.

(f) Release site and condition of all fish released.

(g) Any incidence of observed injury or mortality of listed species.

(5) Streambank protection.

(a) Type and amount of materials used.

(b) Project size

[3] Relevant habitat conditions may include characteristics of channels, eroding and stable streambanks in the project area, riparian vegetation, water quality, flows at base, bankfull and over-bankfull stages, and other visually discernable environmental conditions at the project area, and upstream and downstream of the project.

(i) One bank or both
(ii) Width
(iii) Linear feet.

e. Report on fish presence. In addition to the 120-day implementation report, the permittee will submit a report to the Corps and NOAA Fisheries by December 31 that includes the date of each visit to the project site, site conditions on that date, and any data collected on that date, which shall include information about fish presence/ absence above the ladder. Ladder function will be assessed annually; fish presence will be assessed using ODFW standard survey protocols for this reach at the schedule that has been established (1 to 3 years).

f. Reinitiation contact. To reinitiate consultation, contact the Oregon State Habitat Office of NOAA Fisheries, at the address above.

2. To implement reasonable and prudent measure #2 (construction-related activities), the Corps shall:

a. Timing of in-water work. Complete all work below the bankfull elevation between, July 1 and September 15, unless otherwise approved in writing by NOAA Fisheries.

b. Cessation of work. Cease project operations under high flow conditions that may result in inundation of the project area, except for efforts to avoid or minimize resource damage.

c. Fish screens. Install, operate and maintain a fish screen according to NOAA Fisheries' fish screen criteria[4] on each water intake used for project construction, including pumps used to isolate an in-water work area. Screens for water diversions or intakes that will be used for irrigation, municipal or industrial purposes, or any use besides project construction are not authorized.

d. Pollution and Erosion Control Plan. Prepare and carry out a written pollution and erosion control plan to prevent pollution caused by surveying or construction operations. Submit a copy of the written plan to the Corps and to the Oregon State Habitat Office of NOAA Fisheries, at the address above, before beginning work below bankfull elevation.

i. Plan Contents. The pollution and erosion control plan will contain the pertinent elements listed below, and meet requirements of all applicable laws and regulations.

(1) The name and address of the party(s) responsible for accomplishment of the pollution and erosion control plan.

(2) Practices to prevent erosion and sedimentation associated with access roads, stream crossings, construction sites, borrow pit

[4] National Marine Fisheries Service, *Juvenile Fish Screen Criteria* (revised February 16, 1995) and *Addendum: Juvenile Fish Screen Criteria for Pump Intakes* (May 9, 1996) (guidelines and criteria for migrant fish passage facilities, and new pump intakes and existing inadequate pump intake screens) (http://www.nwr.noaa.gov/1hydrop/hydroweb/ferc.htm).

operations, equipment and material storage sites, fueling operations, and staging areas.

(3) Practices to confine, remove and dispose of excess concrete, cement, grout, and other mortars or bonding agents, including measures for washout facilities.

(4) A description of any regulated or hazardous products or materials that will be used for the project, including procedures for inventory, storage, handling, and monitoring.

(5) A spill containment and control plan with notification procedures, specific cleanup and disposal instructions for different products, quick response containment and cleanup measures that will be available on the site, proposed methods for disposal of spilled materials, and employee training for spill containment.

(6) Practices to prevent construction debris from dropping into any stream or waterbody, and to remove any material that does drop with a minimum disturbance to the streambed and water quality.

ii. Inspection of erosion controls. During construction, monitor instream turbidity and inspect all erosion controls daily during the rainy season and weekly during the dry season, or more often as necessary, to ensure the erosion controls are working adequately.[5]

(1) If monitoring or inspection shows that the erosion controls are ineffective, mobilize work crews immediately to make repairs, install replacements, or install additional controls as necessary.

(2) Remove sediment from erosion controls once it has reached 1/3 of the exposed height of the control.

e. Construction discharge water. Treat all discharge water created by construction (*e.g.*, concrete washout, pumping for work area isolation, vehicle wash water, drilling fluids) as follows.

i. Water quality. Design, build and maintain facilities to collect and treat all construction discharge water, including any contaminated water produced by drilling, using the best available technology applicable to site conditions. Provide treatment to remove debris, nutrients, sediment, petroleum hydrocarbons, metals and other pollutants likely to be present.

ii. Discharge velocity. If construction discharge water is released using an outfall or diffuser port, velocities may not exceed 4 feet per second, and the maximum size of any aperture may not exceed one inch.

iii. Pollutants. Do not allow pollutants including green concrete, contaminated water, silt, welding slag, sandblasting abrasive, or grout cured less than 24 hours to contact any wetland or the 2-year floodplain.

[5] 'Working adequately' means that project activities do not increase ambient stream turbidity by more than 10% above background 100 feet below the discharge, when measured relative to a control point immediately upstream of the turbidity causing activity.

f. Preconstruction activity. Complete the following actions before significant alteration of the project area.

i. Marking. Flag the boundaries of clearing limits associated with site access and construction to prevent ground disturbance of critical riparian vegetation, wetlands and other sensitive sites beyond the flagged boundary.

ii. Emergency erosion controls. Ensure that the following materials for emergency erosion control are onsite.

(1) A supply of sediment control materials (*e.g.*, silt fence, straw bales[6]).

(2) An oil-absorbing, floating boom whenever surface water is present.

iii. Temporary erosion controls. All temporary erosion controls will be in-place and appropriately installed downslope of project activity within the riparian area until site restoration is complete.

g. Heavy Equipment. Restrict use of heavy equipment as follows:

i. Choice of equipment. When heavy equipment will be used, the equipment selected will have the least adverse effects on the environment (*e.g.*, minimally-sized, low ground pressure equipment).

ii. Vehicle and material staging. Store construction materials, and fuel, operate, maintain and store vehicles as follows.

(1) To reduce the staging area and potential for contamination, ensure that only enough supplies and equipment to complete a specific job will be stored on-site.

(2) Complete vehicle staging, cleaning, maintenance, refueling, and fuel storage in a vehicle staging area placed 150 feet or more from any stream, waterbody or wetland, unless otherwise approved in writing by NOAA Fisheries.

(3) Inspect all vehicles operated within 150 feet of any stream, waterbody or wetland daily for fluid leaks before leaving the vehicle staging area. Repair any leaks detected in the vehicle staging area before the vehicle resumes operation. Document inspections in a record that is available for review on request by Corps or NOAA Fisheries.

(4) Before operations begin and as often as necessary during operation, steam clean all equipment that will be used below bankfull elevation until all visible external oil, grease, mud, and other visible contaminates are removed.

(5) Diaper all stationary power equipment (*e.g.*, generators, cranes, stationary drilling equipment) operated within 150 feet of any stream, waterbody or wetland to prevent leaks, unless suitable

[6] When available, certified weed-free straw or hay bales will be used to prevent introduction of noxious weeds.

containment is provided to prevent potential spills from entering any stream or waterbody.

h. Site preparation. Conserve native materials for site restoration.
   i. If possible, leave native materials where they are found.
   ii. If materials are moved, damaged or destroyed, replace them with a functional equivalent during site restoration.
   iii. Stockpile any large wood,[7] native vegetation, weed-free topsoil, and native channel material displaced by construction for use during site restoration.

i. Isolation of in-water work area. If adult or juvenile fish are reasonably certain to be present, or if the work area is 300 feet upstream of spawning habitats, completely isolate the work area from the active flowing stream using inflatable bags, sandbags, sheet pilings, or similar materials, unless otherwise approved in writing by NOAA Fisheries.

j. Capture and release. Before and intermittently during pumping to isolate an in-water work area, attempt to capture and release fish from the isolated area using trapping, seining, electrofishing, or other methods as are prudent to minimize risk of injury.
   i. The entire capture and release operation must be conducted or supervised by a fishery biologist experienced with work area isolation and competent to ensure the safe handling of all ESA-listed fish.
   ii. Do not use electrofishing if water temperatures exceed 18ºC.
   iii. If electrofishing equipment is used to capture fish, comply with NOAA Fisheries' electrofishing guidelines.[8]
   iv. Handle ESA-listed fish with extreme care, keeping fish in water to the maximum extent possible during seining and transfer procedures to prevent the added stress of out-of-water handling.
   v. Transport fish in aerated buckets or tanks.
   vi. Release fish into a safe release site as quickly as possible, and as near as possible to capture sites.
   vii. Do not transfer ESA-listed fish to anyone except NOAA Fisheries personnel, unless otherwise approved in writing by NOAA Fisheries.
   viii. Obtain all other Federal, state, and local permits necessary to conduct the capture and release activity.

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[7] For purposes of this Opinion only, 'large wood' means a tree, log, or rootwad big enough to dissipate stream energy associated with high flows, capture bedload, stabilize streambanks, influence channel characteristics, and otherwise support aquatic habitat function, given the slope and bankfull channel width of the stream in which the wood occurs. See, Oregon Department of Forestry and Oregon Department of Fish and Wildlife, *A Guide to Placing Large Wood in Streams*, May 1995 (www.odf.state.or.us/FP/RefLibrary/LargeWoodPlacemntGuide5-95.doc).

[8] National Marine Fisheries Service, *Backpack Electrofishing Guidelines* (December 1998) (http://www.nwr.noaa.gov/1salmon/salmesa/pubs/electrog.pdf).

ix. Allow NOAA Fisheries or its designated representative to accompany the capture team during the capture and release activity, and to inspect the team's capture and release records and facilities.

k. Streambank protection goal. The streambank protection authorized by this Opinion is to avoid and minimize adverse affects to to the ladder and hence, to effective fish passage.

l. Use of large wood and rock. Whenever possible, use large wood as an integral component of all streambank protection treatments.[9] Avoid or minimize the use of rock, stone and similar materials. Large wood will be intact, hard, and undecayed to partly decaying with untrimmed root wads to provide functional refugia habitat for fish. Use of decayed or fragmented wood found laying on the ground or partially sunken in the ground is not acceptable.

3. MAGNUSON-STEVENS FISHERY CONSERVATION AND MANAGEMENT ACT

3.1 Background

The MSA, as amended by the Sustainable Fisheries Act of 1996 (Public Law 104-267), established procedures designed to identify, conserve, and enhance essential fish habitat (EFH) for those species regulated under a Federal fisheries management plan. Pursuant to the MSA:

- Federal agencies must consult with NOAA Fisheries on all actions, or proposed actions, authorized, funded, or undertaken by the agency, that may adversely affect EFH (§305(b)(2)).

- NOAA Fisheries must provide conservation recommendations for any Federal or State action that would adversely affect EFH (§305(b)(4)(A)).

- Federal agencies must provide a detailed response in writing to NOAA Fisheries within 30 days after receiving EFH conservation recommendations. The response must include a description of measures proposed by the agency for avoiding, mitigating, or offsetting the impact of the activity on EFH. In the case of a response that is inconsistent with NOAA Fisheries' EFH conservation recommendations, the Federal agency must explain its reasons for not following the recommendations (§305(b)(4)(B)).

[9] See, *e,g,* Washington Department of Fish and Wildlife, Washington Department of Transportation, and Washington Department of Ecology, *Integrated Streambank Protection Guidelines*, Appendix I:Anchoring and placement of large woody debris (April 2003) (http://www.wa.gov/wdfw/hab/ahg/ispgdoc.htm); Oregon Department of Forestry and Oregon Department of Fish and Wildlife, *A Guide to Placing Large Wood in Streams*, May 1995 (http://www.odf.state.or.us/FP/RefLibrary/RefsList.htm).

EFH means those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity (MSA §3). For the purpose of interpreting this definition of EFH: Waters include aquatic areas and their associated physical, chemical, and biological properties that are used by fish and may include aquatic areas historically used by fish where appropriate; substrate includes sediment, hard bottom, structures underlying the waters, and associated biological communities; necessary means the habitat required to support a sustainable fishery and the managed species' contribution to a healthy ecosystem; and "spawning, breeding, feeding, or growth to maturity" covers a species' full life cycle (50 CFR 600.10). Adverse effect means any impact which reduces quality and/or quantity of EFH, and may include direct (*e.g.*, contamination or physical disruption), indirect (*e.g.*, loss of prey or reduction in species fecundity), site-specific or habitat-wide impacts, including individual, cumulative, or synergistic consequences of actions (50 CFR 600.810).

EFH consultation with NOAA Fisheries is required regarding any Federal agency action that may adversely affect EFH, including actions that occur outside EFH, such as certain upstream and upslope activities.

The objectives of this EFH consultation are to determine whether the proposed action would adversely affect designated EFH and to recommend conservation measures to avoid, minimize, or otherwise offset potential adverse effects to EFH.

3.2 Identification of EFH

Pursuant to the MSA the Pacific Fisheries Management Council (PFMC) has designated EFH for three species of federally-managed Pacific salmon: Chinook (*Oncorhynchus tshawytscha*), coho (*O. kisutch*), and Puget Sound pink salmon (*O. gorbuscha*) (PFMC 1999). Freshwater EFH for Pacific salmon includes all those streams, lakes, ponds, wetlands, and other waterbodies currently, or historically accessible to salmon in Washington, Oregon, Idaho, and California, except areas upstream of certain impassable man-made barriers (as identified by the PFMC 1999), and longstanding, naturally-impassable barriers (*i.e.*, natural waterfalls in existence for several hundred years). Detailed descriptions and identifications of EFH for salmon are found in Appendix A to Amendment 14 to the *Pacific Coast Salmon Plan* (PFMC 1999). Assessment of potential adverse effects to these species' EFH from the proposed action is based, in part, on this information.

3.3 Proposed Action

The proposed action is detailed above in section 1.2 of this document. For this consultation, the action area includes all riverine habitats accessible to anaadromous salmon from 100 feet upstream of the fish ladder, to 300 feet downstream of the impoundment. This area has been designated as EFH for Chinook and coho salmon.

3.4 Effects of Proposed Action

The proposed action will temporarily adversely affect rearing and migration habitat for juvenile salmon, and water quality for Chinook and coho salmon.

Water Quality – Turbidity
In the short term, sediment from construction activities will cause turbidity in the stretch of Killam Creek immediately downstream of the project area. The proposed construction is likely to temporarily increase turbidity downstream of the work area during and after construction for a total of approximately 7 to 10 hours per in-water construction activity. This may result in some accumulation of sediment in the lower reaches of Killam Creek.

Water Quality – Dissolved Oxygen
Fine sediments produced by construction would likely create a sediment plume that may not disperse rapidly. NOAA Fisheries expects only minor effects on dissolved oxygen concentrations due to the limited construction activity that is proposed, and because in-water work will be isolated from the stream flow.

Construction Equipment
Operation of heavy equipment requires the use of fuel, lubricants, coolants, and other petroleum products, which if spilled into a waterbody could injure or kill aquatic organisms. Petroleum-based contaminants, such as fuel, oil, and some hydraulic fluids, contain harmful polycyclic aromatic hydrocarbons. The project will implement a pollution control plan to limit the potential for pollution from construction equipment.

3.5 Conclusion

The proposed action will adversely affect the EFH for Chinook and coho salmon in the action area. These negative effects are expected to be short-lived and temporary.

3.6 EFH Conservation Recommendations

Pursuant to section 305(b)(4)(A) of the MSA, NOAA Fisheries is required to provide EFH conservation recommendations for any Federal or state agency action that would adversely affect EFH. The conservation measures proposed for the project by the Corps and all of the reasonable and prudent measures and the terms and conditions contained in section 2.2.3, except monitoring, are applicable to EFH. Therefore, NOAA Fisheries incorporates each of those measures here as EFH recommendations.

3.7 Statutory Response Requirement

Pursuant to the MSA (§305(b)(4)(B)) and 50 CFR 600.920(j), Federal agencies are required to provide a detailed written response to NOAA Fisheries' EFH conservation recommendations within 30 days of receipt of these recommendations. The response must include a description of measures proposed to avoid, mitigate, or offset the adverse impacts of the activity on EFH. In the case of a response that is inconsistent with the EFH conservation recommendations, the response must explain the reasons for not following the recommendations, including the scientific justification for any disagreements over the anticipated effects of the proposed action and the measures needed to avoid, minimize, mitigate, or offset such effects.

3.8 Supplemental Consultation

The Corps must reinitiate EFH consultation with NOAA Fisheries if the proposed action is substantially revised in a manner that may adversely affect EFH, or if new information becomes available that affects the basis for NOAA Fisheries' EFH conservation recommendations (50 CFR 600.920(k)).

4. LITERATURE CITED

Section 7(a)(2) of the ESA requires biological opinions to be based on the best scientific and commercial data available. This section identifies the data used in developing this Opinion.

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